

B.) AMENDMENTS TO THE SPECIFICATION

Please delete the current Title and add the following new Title:

SELECTIVE REGION VAPOR PHASE ALUMINIDED SUPERALLOY
ARTICLES

Please add the following new section and paragraph [0000.1] with the following amended paragraph prior to the FIELD OF THE INVENTION and after the title:

CROSS-REFERENCE TO RELATED APPLICATIONS

[0000.1] This Application is a division of Application No. 10/385,637, filed on October 3, 2002, invented by Nripendra Nath Das et al, entitled "METHOD OF SELECTIVE REGION VAPOR PHASE ALUMINIZING."

Please amend the abstract as follows:

ABSTRACT

The present invention is a superalloy article coated with a diffusion aluminide layer using a process for forming diffusion aluminide coatings on an uncoated surface of a superalloy article substrate, without interdiffusing a sufficient amount of aluminum into a coating layer to adversely affect the coating growth potential and mechanical properties of said coating layer. A superalloy article metal substrate is provided comprising an external surface and an internal passage therein defined by an internal surface, at least a portion of the external surface of the substrate superalloy article being coated with a coating layer selected from

the group consisting of β -NiAl-base, MCrAlX, a line-of-sight diffusion aluminide, a non-line-of-sight diffusion aluminide, a pack diffusion aluminide, and a slurry diffusion aluminide on said substrate superalloy article. The external surface of the substrate superalloy article is cleaned. The superalloy article metal substrate is subjected to a aluminum vapor phase deposition process performed using a fluorine-containing activator selected from the group consisting of AlF₃, CrF₃, NH₄F, and combinations thereof, at a rate in the range of about 0.036 mols of fluorine per ft³/hr of transport gas to about 0.18 mols of fluorine per ft³/hr of transport gas, at a temperature in the range of about 1350°F (730°C) to about 1925°F (1050°C), using a transport gas selected from the group consisting of argon, nitrogen, hydrogen, and combinations thereof, the transport gas being provided at a flow rate in the range of about 20 ft³/hr to about 120 ft³/hr for a period of time in the range of about 2 hours to about 10 hours. The substrate superalloy article is then cooled. The present invention is also a superalloy article coated with a diffusion aluminide layer using the diffusion aluminide coating process of the present invention.

Please add the following Paragraph after Paragraph [0017]:

[0017.1] The present invention is also superalloy article comprising an external surface and an internal passage therein defined by an internal surface. The superalloy article of the present invention also comprises a coating layer, selected from the group of alloys consisting of β -NiAl-base, MCrAlX, and a diffusion aluminide, on at least a portion of the external surface of the superalloy article. The superalloy article of the present invention also comprises a diffusion aluminide coating on at least a portion of the internal surface and on the remaining external surfaces of the superalloy article, the diffusion aluminide coating applied using a aluminum vapor phase deposition process performed using a fluorine-containing activator selected from the group consisting of

Attorney Docket No. 13DV-14080-2 (07783-0197)

AlF_3 , CrF_3 , NH_4F , and combinations thereof, at a rate in the range of about 0.036 mols of fluorine per ft^3/hr of transport gas to about 0.18 mols of fluorine per ft^3/hr of transport gas, at a temperature in the range of about 1350°F to about 1925°F , using a transport gas selected from the group consisting of argon, nitrogen, hydrogen, and combinations thereof, the transport gas being provided at a flow rate in the range of about $20 \text{ ft}^3/\text{hr}$ to about $120 \text{ ft}^3/\text{hr}$ for a period of time in the range of about 2 hours to about 10 hours.